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| Ａ６１Ｂ　3/10 | | Ａ６１Ｂ　3/10 | Ｚ |
| 5/117 | | 5/10 | ３２０Ａ |
| Ｇ０６Ｆ　17/60 | | Ｇ０６Ｆ　15/21 | ３４０Ｂ |

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(22)出願日　平成９年(1997)２月26日

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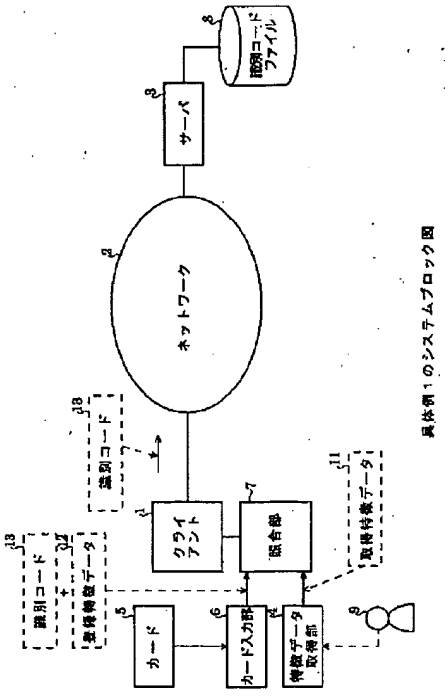
(54)【発明の名称】　ネットワークセキュリティシステム

(57)【要約】
【解決手段】　特徴データ取得部４は、ユーザー９の眼の映像から特徴データを取得する。カード５には、予めユーザー本人の登録特徴データが格納されている。照合部７でユーザー９がカード所有者本人と確認されると、カード５に格納された識別コードがクライアント１からサーバ３に送られる。サーバ３は、この識別コードに基づいてクライアント１にサービスを提供する。
【効果】　ネットワーク２を特徴データや暗証番号等が流れないため個人情報の漏洩のおそれがなく、本人以外がサービスにアクセスできないため安全を確保できる。




具体例１のシステムブロック図

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CLAIMS

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[Claim(s)]
[Claim 1] In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, The card input section which reads the registration feature data recorded on the card which the user threw in, and a user's identification code, The registration feature data which this card input section read, and the feature data of the image a user's eye which the feature data acquisition section acquired are collated. It has the collating section which checks that it is him a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the aforementioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[Claim 2] In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, The card input section which reads the file search key recorded on the card which the user threw in, and a user's identification code, While reading a cardholder's registration feature data from the registration feature data file by the file search key which this card input section read It has the collating section which checks that it is him. the feature data of the image a user's eye which the aforementioned feature data acquisition section acquired -- collating -- a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the aforementioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[Claim 3] In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, By the file search key which the card input section which reads the file search key recorded on the card which the user threw in, and a user's identification code, and this card input section read A cardholder's registration feature data are read from the registration feature data file connected through the network to the client. It has the collating section which checks that it is him. the feature data of the image a user's eye which the aforementioned feature data acquisition section acquired -- collating -- a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the aforementioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[Claim 4] It is the network security system which supervises time after a server requires the start of

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the network security system which secures the safety in the case of performing sanction etc. through a network.
[0002]
[Description of the Prior Art] The personal computer called multimedia PC can treat voice, a picture, etc., and is widely used for information transmission and reception of E-mail and others various kinds. Moreover, such a terminal is connected to a huge network which is represented by the Internet, and it is provided with various services including a commercial transaction. When conducting the dealings which led such a network, predetermined sanction is needed in order to form dealings. However, there is a possibility of the data being stolen by the so-called hacker etc. and abusing a network top when a password, the code data of a money card, etc. are transmitted. Therefore, generally sanction is performed by mailing of an application form, the transfer processing in the window of a bank, etc.
[0003]
[Problem(s) to be Solved by the Invention] However, since the method of sanction like before is troublesome for a user, it lacks in the convenience of the dealings using the network. In order to solve such a point, encoding technology is studied widely. Perfect defense is not necessarily made [ as opposed to / a hacker / not necessarily / in this ].
[0004] On the other hand, the technology of checking him is developed using the feature data acquired from the image of an eye for for example, visitor management etc. (JP,5-84166,B). Here, the predetermined feature data which processed the iris data which are a part of image of an eye are obtained, and it judges whether you are him like a fingerprint etc. It is desirable to use this kind of technology for the security of the dealings in a network.
[0005]
[Means for Solving the Problem] this invention adopts the next composition in order to solve the above point.
<Composition 1> In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, The card input section which reads the registration feature data recorded on the card which the user threw in, and a user's identification code, The registration feature data which this card input section read, and the feature data of the image a user's eye which the feature data acquisition section acquired are collated. It has the collating section which checks that it is him. a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the above-mentioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[0006] <Composition 2> In what a client and a server are mutually connected through a network and a

data or a personal identification number to a network only for the identification code 13 which is the demand and its response from a server 3. For this reason, the improper use by personal information leak can be prevented. and a user -- as for him, by using the identification code which cannot be known, risk of being stolen by others also decreases and identification code raises the security of a commercial transaction

[0019] <Example 2> The system block view of an example 2 is shown in drawing 3 . This system also has the composition that a client 1 performs a predetermined access demand to a server 3 through a network 2. The composition of the feature data acquisition section 4 connected to the client 1, the card input section 6, and collating section 7 grade is the same as that of an example 1. By this example 2, the registration feature data file 15 is newly connected to the collating section 7. the predetermined file search key 14 and the predetermined registration feature data 12 are matching ******(ed) by the registration feature data file 15

[0020] Moreover, this file search key 14 and identification code 13 are stored in a card 5. The collating section 7 searches the registration feature data file 15 using the file search key 14, and reads the corresponding registration feature data 12. And it is constituted so that collating processing with the acquisition feature data 11 inputted from the registration feature data 12 and the feature data acquisition section 4 may be performed. Other composition is the same as that of an example 1.

[0021] Operation of an example 2 is explained using drawing 4 . Drawing 4 is the system operation flow chart of an example 2. At Step S1 of drawing, a server performs the collating demand of the feature data to the access demand from a client like an example 1, and a client acquires the image of a user's eye at Step S2. Next, at Step S3, the file search key 14 is read from the card 5 which the user 9 threw in. By step S4, the collating section 7 reads the registration feature data 12 corresponding to the file search key 14 with reference to the registration feature data file 15. And in Step S5, collating processing with the acquisition feature data 11 inputted from the feature data acquisition section 4 is performed. If judged as him as a result of this collating, it will progress to Step S7 from Step S6, and identification code 13 will be transmitted to a server 3. The following processings are the same as that of an example 1, and start the service whose server used identification code at Step S8. Processing is stopped if not judged as him (step S9).

[0022] <Effect of an example 2> Since the registration feature data are not stored in a card 5 as compared with an example 1 but the file search key was stored, the amount of data which should be stored in a card 5 can be lessened enough. Therefore, an easy magnetic card etc. can realize a card and a transaction cost can be cut down. Other effects are the same as an example 1.

[0023] <Example 3> The system block view of an example 3 is shown in drawing 5 . As shown in this drawing, by the example 3, the registration feature data file 15 is connected through 1st network 2A to a client 1. This 1st network 2A is taken as the network which is easy to secure the secret of data on a network like LAN (Local Area Network). A majority of other clients which are not illustrated shall be connected to this 1st network 2A. Moreover, the file search key 14 and the registration feature data constellation 18 are stored in the registration feature data file 15.

[0024] ** [ comparison of the system of the example 2 shown in drawing 3 , and the system of this example 3 / differ / in that the registration feature data file 15 is connected through 1st network 2A to the client 1 / it ] In addition, the registration feature data constellation 18 corresponding to the file search key 14 stored in the registration feature data file 15 is the registration feature data aggregate which divided the whole registration feature data suitably.

[0025] When performing collating processing, the collating section 7 searches the registration feature data file 15 through a client and 1st network 2A, and acquires the required registration feature data constellation 18. Then, collating processing is performed. Other operation is completely the same as that of what is shown in drawing 3 . You may make a file search key and the registration feature data correspond to the example 2 shown in drawing 3 by the one to one so that it may be shown. Moreover, conversely, the file search key 14 may be made to correspond also in the case of an example 2, and the registration feature data constellation may be stored in it. In this case, it will be judged whether the collating section 7 has the acquisition feature data 11 and a match in the registration feature data

constellation. Also in an example 3, it is the same and the collating section 7 performs collating processing with the registration feature data constellation 18 and the acquisition feature data 11 which were received through 1st network 2A. If the file search key corresponding to all the registration feature data is prepared, the number of characters of a file search key will increase remarkably, and two or more registration feature data by one file search key will be taken out because management becomes less easy. Moreover, it is because the rest should just perform collating processing by the collating section 7 if collating processing takes out the registration feature data to the grade made comparatively promptly.
[0026] <the effect of an example 3> -- since the registration feature data file 15 is connected to 1st network 2A in addition to the effect of an example 2, refer to this registration feature data file 15 for other clients connected to this 1st network 2A freely It becomes unnecessary therefore, to save the big registration feature data file at a client side. Of course, as for the registration feature data file 15, only the arbitrary numbers instead of one may be connected to 1st network 2A. By this, if even the collating section of the feature data is in a client side, it will connect with a network freely and extension of a system will be attained. Moreover, since the increase and decrease of change of the registration feature data file 15 can be performed easily, maintenance nature improves, and maintenance cost can be cut down.
[0027] <Example 4> The sequence chart of an example 4 is shown in drawing 6 . By this example 4, when a server receives an access demand from a client, it supervises whether the client is actually performing collating processing of the feature data, and unjust processing is eliminated from the processing time etc. The system which applies this example 4 may be any system explained by drawing 1 , drawing 3 , drawing 5 , etc.
[0028] In drawing 6 , a client 1 requires access from a server 3 at Step S1 first. A server 3 performs the collating demand of the feature data to a client 1 corresponding to this at Step S2. A client 1 makes the collating preparations in Step S3. That is, for example in the system of drawing 1 , the feature data acquisition section 4 acquires the image of a user's 9 eye, and generation processing of the feature data is performed. Next, in Step S5, a preparation-completion report is performed to a server 3. On the other hand, a server 3 performs the surveillance by the timer, after performing the collating demand of the feature data to a client 1 at Step S2 (step S4).
[0029] That is, after supervising the time from a collating demand to a preparation-completion report and performing suitable processing by the client 1 side, it judges whether the preparation-completion report S5 was accepted. Dealings are stopped noting that a certain injustice arises, when [ remarkable ] the time to a report is long, or in being unusually short. When injustice is detected, it progresses to Step S10, and trading-halting processing etc. is performed. Furthermore, the server 3 which received the preparation-completion report at Step S5 performs collating start directions at Step S6. On the other hand, a client 1 performs collating processing in Step S7, and reports the notice of a result in step S9. A server 3 performs a timer supervision until it receives a notice by step S9 a result from the time of sending the collating start directions S6 to a client 1 also in this case (Step S8).
[0030] Here, in consideration of the time for required collating processing, the remarkable case of being short, and the remarkable case of being long are judged to be unjust processing. Thus, it is distinguishable whether the actual feature data collating processing is performed or identification code is transmitted immediately, without performing this processing.
[0031] <Effect of an example 4> Since a server supervises the collating processing time including the collating preparation by the client etc. as mentioned above, unjust processing is eliminated and security is raised. For example, if a preparation-completion report comes immediately or identification code comes to the short time which performs collating processing and which is not on the contrary using the feature data acquired unjustly beforehand, it can be judged as what was prepared unjustly.
[0032] <Example 5> The system block view of an example 5 is shown in drawing 7 . The client 1 is connected to the server 3 also for this system through the network 2. Moreover, in this system, a camera 16 is connected to a client 1 and it has composition which acquires the image of a user's 9 eye. Moreover, the registration feature data file 15 and the collating section 7 are formed in a server 3 side.
[0033] The system of the above-mentioned composition operates as follows. The operation flow chart of

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EFFECT OF THE INVENTION

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<the effect of an example 1> -- according to this example -- a client side -- the feature data of the image of an eye like iris data -- using it -- him -- in order to check, use of a third person is prevented and security is raised And the data which flow to a network do not pass personal information like the feature data or a personal identification number to a network only for the identification code 13 which is the demand and its response from a server 3. For this reason, the improper use by personal information leak can be prevented. and a user -- as for him, by using the identification code which cannot be known, risk of being stolen by others also decreases and identification code raises the security of a commercial transaction

[0019] <Example 2> The system block view of an example 2 is shown in drawing 3 . This system also has the composition that a client 1 performs a predetermined access demand to a server 3 through a network 2. The composition of the feature data acquisition section 4 connected to the client 1, the card input section 6, and collating section 7 grade is the same as that of an example 1. By this example 2, the registration feature data file 15 is newly connected to the collating section 7. the predetermined file search key 14 and the predetermined registration feature data 12 are matching ******(ed) by the registration feature data file 15

[0020] Moreover, this file search key 14 and identification code 13 are stored in a card 5. The collating section 7 searches the registration feature data file 15 using the file search key 14, and reads the corresponding registration feature data 12. And it is constituted so that collating processing with the acquisition feature data 11 inputted from the registration feature data 12 and the feature data acquisition section 4 may be performed. Other composition is the same as that of an example 1.

[0021] Operation of an example 2 is explained using drawing 4 . Drawing 4 is the system operation flow chart of an example 2. At Step S1 of drawing, a server performs the collating demand of the feature data to the access demand from a client like an example 1, and a client acquires the image of a user's eye at Step S2. Next, at Step S3, the file search key 14 is read from the card 5 which the user 9 threw in. By step S4, the collating section 7 reads the registration feature data 12 corresponding to the file search key 14 with reference to the registration feature data file 15. And in Step S5, collating processing with the acquisition feature data 11 inputted from the feature data acquisition section 4 is performed. If judged as him as a result of this collating, it will progress to Step S7 from Step S6, and identification code 13 will be transmitted to a server 3. The following processings are the same as that of an example 1, and start the service whose server used identification code at Step S8. Processing is stopped if not judged as him (step S9).

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, since the method of sanction like before is troublesome for a user, it lacks in the convenience of the dealings using the network. In order to solve such a point, encoding technology is studied widely. Perfect defense is not necessarily made [ as opposed to / a hacker / not necessarily / in this ].
[0004] On the other hand, the technology of checking him is developed using the feature data acquired from the image of an eye for for example, visitor management etc. (JP,5-84166,B). Here, the predetermined feature data which processed the iris data which are a part of image of an eye are obtained, and it judges whether you are him like a fingerprint etc. It is desirable to use this kind of technology for the security of the dealings in a network.

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MEANS

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[Means for Solving the Problem] this invention adopts the next composition in order to solve the above point.
<Composition 1> In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, The card input section which reads the registration feature data recorded on the card which the user threw in, and a user's identification code, The registration feature data which this card input section read, and the feature data of the image a user's eye which the feature data acquisition section acquired are collated. It has the collating section which checks that it is him. a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the above-mentioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[0006] <Composition 2> In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, The card input section which reads the file search key recorded on the card which the user threw in, and a user's identification code, While reading a cardholder's registration feature data from the registration feature data file by the file search key which this card input section read It has the collating section which checks that it is him. the feature data of the image a user's eye which the above-mentioned feature data acquisition section acquired -- collating -- a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the above-mentioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.
[0007] <Composition 3> In what a client and a server are mutually connected through a network and a server provides with predetermined service according to the demand of a client to a client side The feature data acquisition section which acquires the feature data from the image of a user's eye, By the file search key which the card input section which reads the file search key recorded on the card which the user threw in, and a user's identification code, and this card input section read A cardholder's registration feature data are read from the registration feature data file connected through the network to the client. It has the collating section which checks that it is him. the feature data of the image a user's eye which the above-mentioned feature data acquisition section acquired -- collating -- a user -- a cardholder -- to a server side the identification code file which stored a regular user's identification code -- having -- a client side -- the result of the above-mentioned collating processing -- a user -- a cardholder, when it checks with him It is the network security system which identification code is transmitted to a server from a client, and is characterized by a server starting service to a user with reference to an identification code file.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]
[Drawing 1] It is the system block view of an example 1.
[Drawing 2] It is the system operation flow chart of an example 1.
[Drawing 3] It is the system block view of an example 2.
[Drawing 4] It is the system operation flow chart of an example 2.
[Drawing 5] It is the system block view of an example 3.
[Drawing 6] It is the sequence chart of an example 4.
[Drawing 7] It is the system block view of an example 5.
[Drawing 8] It is the system operation flow chart of an example 5.
[Drawing 9] It is the system block view of an example 6.
[Drawing 10] It is the system operation flow chart of an example 6.
[Drawing 11] It is the system block view of an example 7.
[Drawing 12] It is the system operation flow chart of an example 7.
[Description of Notations]
1 Client
2 Network
3 Server
4 The Feature Data Acquisition Section
5 Card
6 Card Input Section
7 Collating Section
8 Identification Code File

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DRAWINGS

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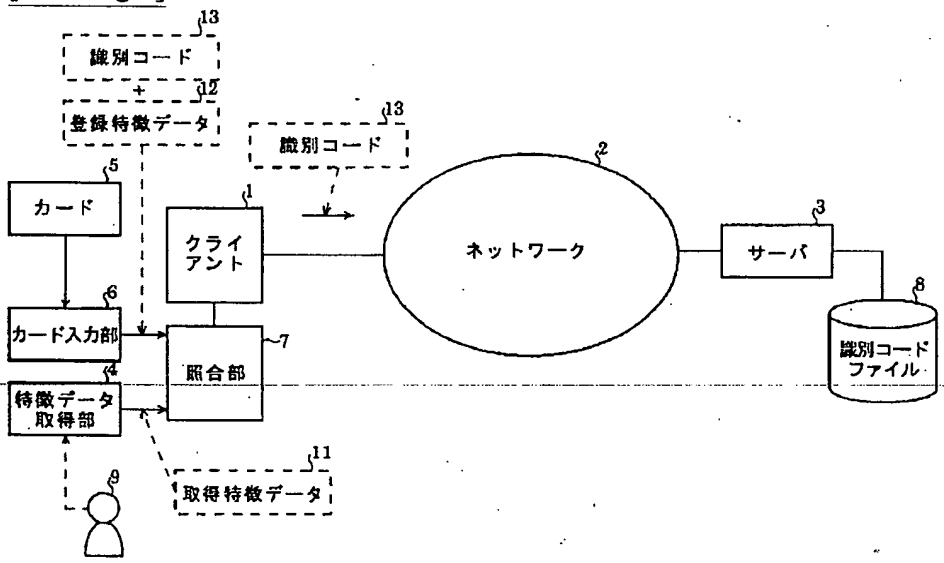
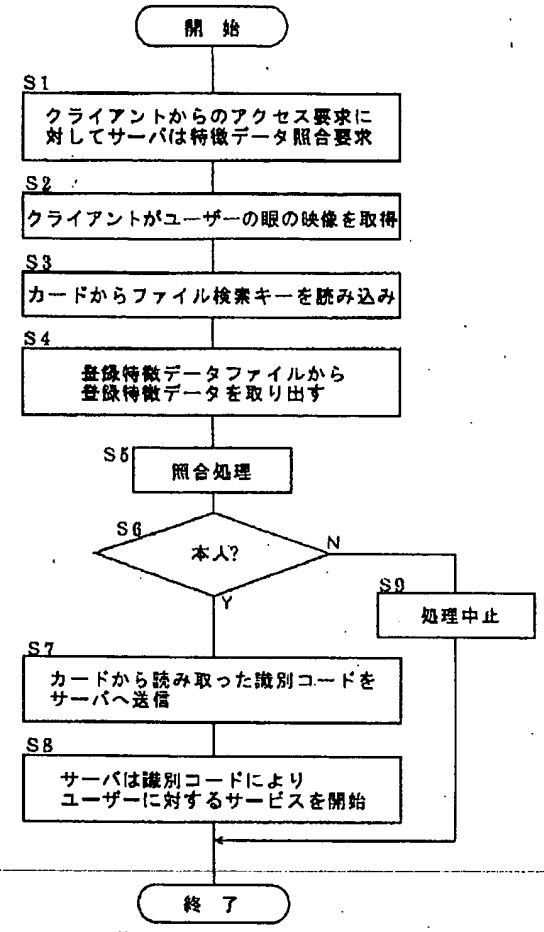
[Drawing 1]



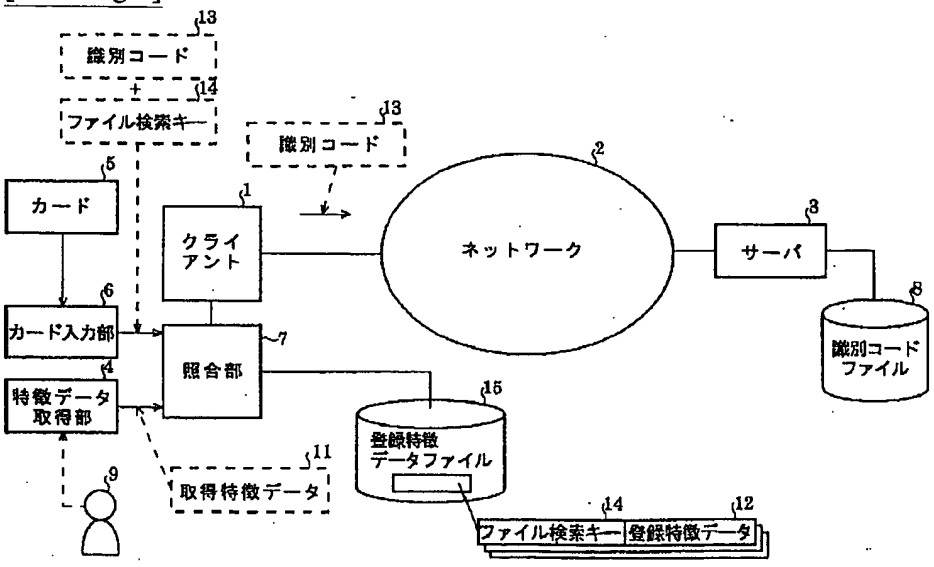

具体例１のシステムブロック図

[Drawing 2]



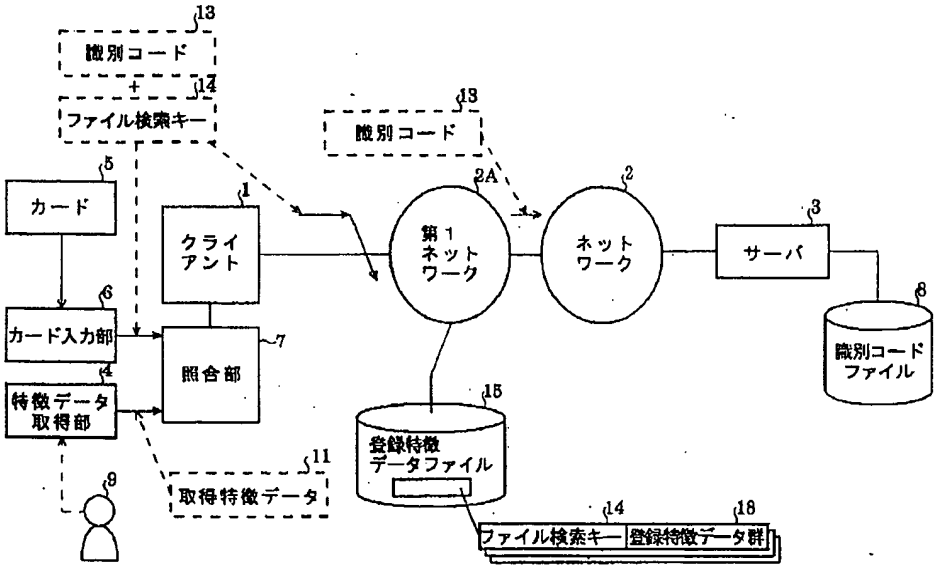

具体例２のシステム動作フローチャート

[Drawing 3]



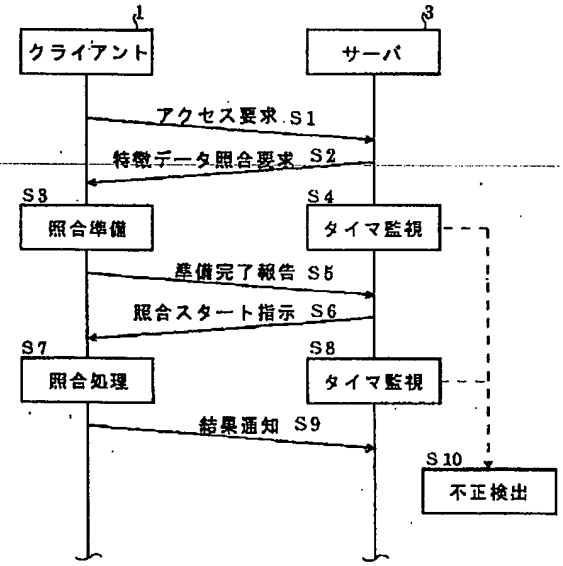

具体例２のシステムブロック図

[Drawing 5]



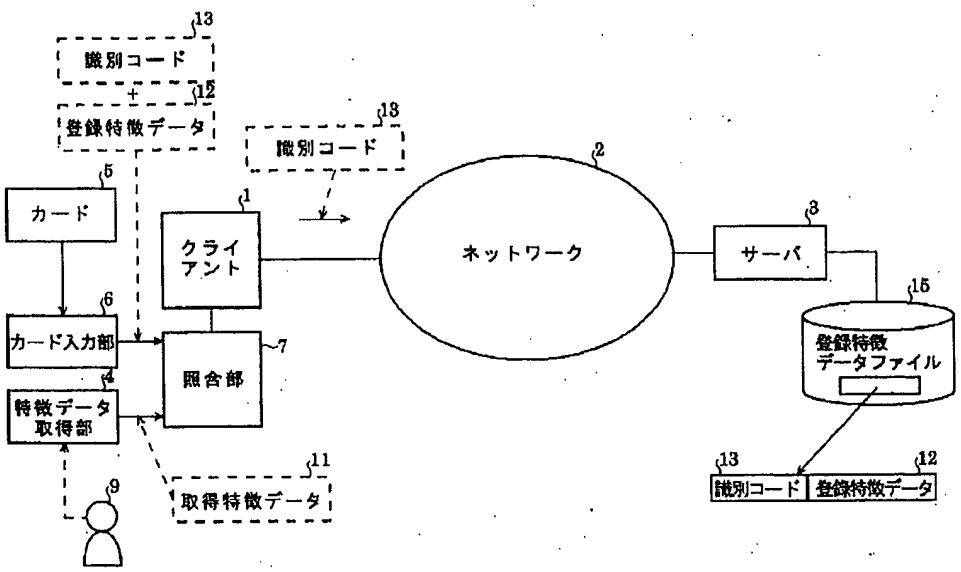

具体例3のシステムブロック図

[Drawing 6]



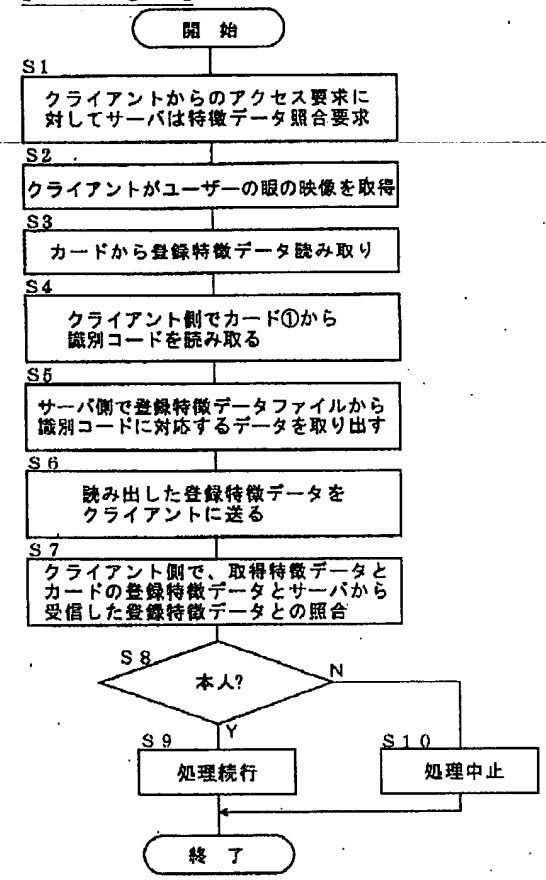

具体例4のシーケンスチャート

[Drawing 7]




具体例７のシステムブロック図

[Drawing 12]




具体例７のシステム動作フローチャート

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